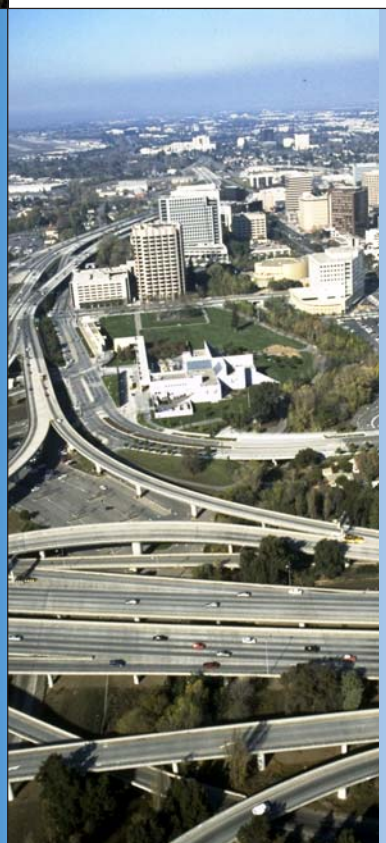
Water Use Efficiency Program

Annual Report
Fiscal Year 2001~2002



Santa Clara Valley Water District

Santa Clara Valley Water District

Conserve & Recycle Water
Water Use Efficiency Unit

Water Use Efficiency PROGRAM

ANNUAL REPORT
FISCAL YEAR 2001~2002

Printed on recycled, recyclable paper

Water Use Efficiency PROGRAM

Conserve & Recycle Water
Water Use Efficiency Unit

ANNUAL REPORT
FISCAL YEAR 2001~2002

About the Santa Clara Valley Water District

The Santa Clara Valley Water District is the primary water resources management agency for Santa Clara County in California. It acts not only as the county's water wholesaler, but also as its flood protection agency and as the steward for its streams and creeks, underground aquifers and District-built reservoirs.

As the county's water wholesaler, the water district makes sure there is enough clean, safe water for homes and businesses. As the agency responsible for local flood protection, the water district works diligently to protect Santa Clara Valley residents and businesses from the devastating effects of flooding.

Our stream stewardship responsibilities include creek restoration and wildlife habitat projects, pollution prevention efforts and a commitment to natural flood protection.

Our mission

The mission of the District is a healthy, safe, and enhanced quality of living in Santa Clara County through the comprehensive management of water resources in a practical, cost-effective, and environmentally sensitive manner.

Santa Clara Valley Water District

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San Jose, CA 95118

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www.valleywater.org

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Santa Clara Valley Water District

Water Use Efficiency PROGRAM

ANNUAL REPORT
FISCAL YEAR 2001~2002

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Executive Summary 4

FY 2002 Program Highlights 6

Water Conservation 6
Water Conservation Timeline 7
Water Recycling 8
Water Recycling Timeline 9
Education and Outreach 11
Conservation and Recycling Studies and Research 12

WUE Program Performance: Conservation and Recycling 13

Overview 13

Water Conservation 14

Overview 14

Water Conservation in the Home 15

Water-Wise House Call Program 15
Low-Flow Showerhead and Aerator Replacement Program 16
Residential Clothes Washer Rebate Program 16
Residential Ultra-Low-Flush Toilet Replacement Program 17
Education and Outreach to Residents 18

Water Conservation in Business 19
Irrigation Technical Assistance Program 19
Water Efficient Technologies Program 20
Commercial Ultra-Low-Flush Toilet Installation Program 21
Pre-Rinse Sprayer Program for Restaurants 22
Commercial Clothes Washer Rebate Program 22
Education and Outreach for Business 23

Water Conservation in Agriculture 24
Mobile Lab Program 24
California Irrigation Management Information System 25
Education and Outreach for Agriculture 26

Water Recycling 27

Overview 27
South Bay Water Recycling Program 28
South County Recycled Water 31
Palo Alto and Sunnyvale 33
Water Recycling Outreach and Education 33

Program Drivers and Partnerships 34

WUE Program Drivers 34
WUE Grant Awards 35
District Partnerships 37

Planning Ahead: Studies and Research 38

Water Conservation Studies and Research 38
Water Recycling Studies and Research 40
Conclusion 42

Executive summary

Water Use Efficiency Unit
Annual Report: Fiscal Year 2001-2002

Given current population growth, District projections show that before the year 2020, Santa Clara County will likely experience water shortages during critically dry years.

This document is the first annual report issued by the Santa Clara Valley Water District's Water Use Efficiency unit (WUE). The District has been active in water conservation and recycling for many years, but in 2001 these two related units—water conservation and water recycling—were combined to better implement the objectives of the District's Integrated Water Resources Plan (IWRP) and its Board Ends Policies*.

The Valley's Water Supply

Given current population growth, District projections show that before the year 2020, Santa Clara County will likely experience water shortages during critically dry years. The IWRP, originally adopted by the District's Board of Directors in 1996, is designed to make up for this deficit and ensure a reliable water supply in the county through 2020.

Water Conservation and Recycling Goals

Currently, the IWRP states that by year 2020, the District's existing and planned conservation programs could save up to 57,000 acre-feet of potable water per year. The IWRP 2002 report affirms both conservation and recycling projects as key components of the future water supply mix. In addition, Board goals call for recycled water to make up 5 percent of total county water use (20,000 AFY) by 2010, and 10 percent of total water use (45,000 AFY) by 2020. These goals are reviewed and updated regularly by the District Board of Directors.

The Santa Clara Valley Water District is responsible for water supply, flood protection, and watershed management within the 1,300 square miles of Santa Clara County.

*** The Board of Directors of the Santa Clara Valley Water District has adopted a set of board governance policies. These policies describe the governance process, the board linkages to the public, and the ends, or goals, of the District.**

Goals Met or Exceeded

Conservation programs are on-target to meet their 2020 goals. Last fiscal year, water savings from the District's numerous conservation programs reached a total of 29,000 acre-feet, putting the WUE unit on schedule to meet or exceed its 2020 IWRP goal.

Water Savings Continue to Rise

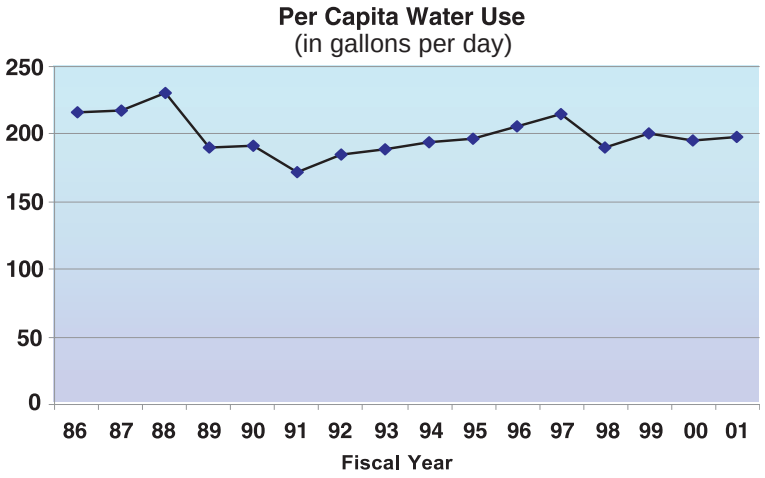
Water savings from conservation has grown from savings of about 4,000 acre-feet in 1991, to last fiscal year's estimated total savings of 29,000 acre-feet. In addition, there has been a steady increase in recycled water use in Santa Clara County over the past ten years, from 1,000 acre-feet in 1990 to last year's 8,020 acre-feet. The county is projected to use about 9,000 acre-feet by the end of 2002.

New Programs, Technology, and Partnerships

Since the District's first ultra-low-flush toilet and showerhead/faucet aerator programs were introduced a decade ago, the District has steadily streamlined and expanded programs in response to new research and technology. The District also continues to aggressively pursue partnerships with the county's major cities and four recycled water producers to help systematically expand countywide water recycling programs. The WUE unit will continue to expand and enhance both recycling and conservation programs to ensure that the community's water supply and wastewater discharge systems work together to provide the most cost-effective use of water resources.

"The water supply is reliable to meet future demands as identified in the District's Integrated Water Resource Plan (IWRP) process."

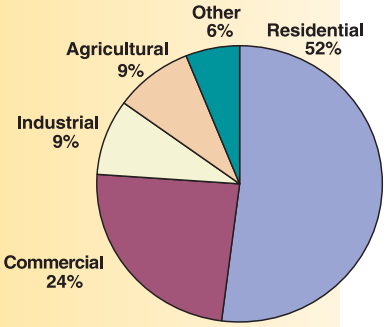
—Santa Clara Valley Water District Board Ends Policy E-2.1.3.



The District saw dramatic declines in county water usage during the 1987 to 1992 drought period. Thanks to conservation and recycling efforts, per capita water use has not rebounded to pre-drought conditions, despite accelerated growth after 1992.

WUE FY 2002 Program Highlights:
Water Conservation and Recycling

Water Use by Sector



The Water Use Efficiency unit continues to expand residential programs. About half the county's total water use occurs in this sector.

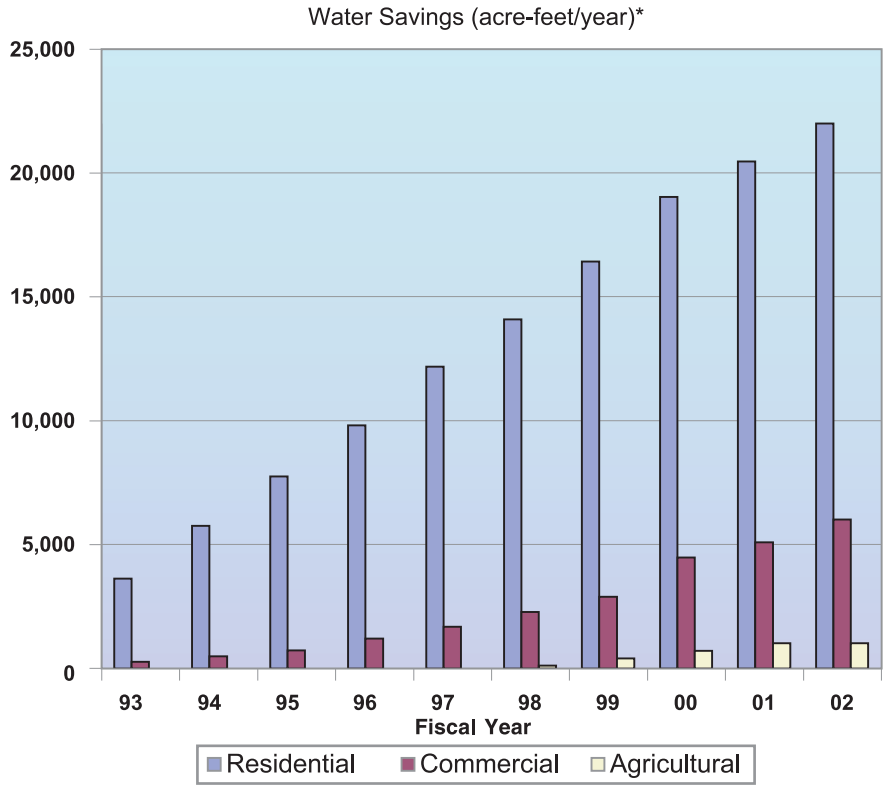
Water Conservation

The Water Use Efficiency unit has over a dozen conservation programs, nearly all of which showed an increase in water savings last year, as well as every year since their inception. Water savings from conservation programs reached a total of 29,000 acre-feet last year, putting the WUE unit on schedule to meet its IWRP goal for 2020. Conservation programs use a mix of incentives and rebates, free device installation, one-on-one home visits, site surveys and education outreach to reduce water consumption in homes, businesses and agriculture.

The District continued to expand residential programs last year; this sector accounted for 22,000 of the total 29,000 acre-feet of water savings achieved in all conservation programs. The WUE unit also introduced new commercial conservation programs, and continued to assist landscaping and agricultural water consumers with its Irrigation Technical Assistance Program, Mobile Lab Program, California Irrigation Management Information System (CIMIS) weather stations, and professional workshops.

The District maintains cost-sharing agreements with numerous cities in order to deliver conservation programs in the most cost-effective manner possible. In addition, the District received over $566,000 in grants last year to fund WUE programs and research.

Totals for Residential, Commercial and Agricultural Water Conservation Programs



*** Statistics shown in this section represent water savings from District conservation programs and The Energy Policy Act of 1992 (EPACT), which set plumbing standards for showerheads, faucet aerators, toilets, and urinals.**

Conservation in the Home

»» The District more than tripled the number of surveys conducted at residential homes through its Water-Wise House Call program last year.

»» The District installed and/or distributed 22,000 free faucet aerators in FY 2002, more than double the amount of previous years. In addition, 14,000 low-flow showerheads were installed or distributed, far exceeding last year's goal of 5,000.

»» The District expanded the Residential Ultra-Low-Flush Toilet (ULFT) Replacement Program last year by offering a new Community Partnerships component. Community Partnerships provides free ULFT installation for elderly, disabled, and/or low-income residents. The District installed over 20,000 toilets through its residential conservation programs last year, bringing the total water savings to 13,000 acre-feet per year.

Routinely changing toilet flappers during Water-Wise House Calls helped increase water savings in this program by almost 300 acre-feet over the last fiscal year.

Conservation in Business

»» The District introduced the Commercial Clothes Washer Rebate Program last year to reduce water use in the business sector.

»» In FY 2002, the District also introduced the Pre-rinse Sprayer Program for Restaurants. The program replaces inefficient dish sprayers with state-of-the-art nozzles which save an average of 200 gallons of water per unit per day.

»» The District expanded the Water Efficient Technologies program to include commercial, industrial, and institutional water customers in all cities in Santa Clara County.

»» Last year, the District expanded the Commercial Ultra-Low-Flush Toilet Program to provide free installations for restaurants, food stores, wholesale stores, retails stores, and gas station throughout the county.

»» The District continues to provide free on-site evaluations for large landscape managers through its Irrigation Technical Assistance Program (ITAP). Since the program's inception, over 400 parks, golf courses, commercial sites, and residential developments have received ITAP services.

***Up to 1,500 gallons of water per acre per day* can be saved by participants in the District's Irrigation Technical Assistance Program (ITAP). The program provides free on-site evaluations for large landscape managers.**

Last fiscal year, both ITAP and the Commercial Clothes Washer Rebate Program received awards from the Friends of the San Francisco Estuary.

Santa Clara Valley Water District
Water Use Efficiency
Conservation Timeline

1987-1992 Drought years

1987 District installs CIMIS weather station in Santa Clara

District distributes 50,000 water conservation kits

1991 District conducts conservation media campaign

District is one of first signatories to the voluntary Memorandum of Understanding with the California Urban Water Conservation Council, which instituted conservation Best Management Practices

1992 District introduces Residential Ultra-Low-Flush Toilet and Low-Flow Showerhead Replacement programs

1993 District begins offering residential water-efficient landscaping workshops

1994 CALFED Bay-Delta Program established to address environmental and water management issues of Bay-Delta system

CIMIS Hotline established at District

(continued) »

The Mobile Lab Program helps agricultural growers save water by offering on-site irrigation system and pump evaluations.

Conservation Timeline
(continued)

1995 District introduces Irrigation Technical Assistance Program and Residential Clothes Washer Rebate Program

1996 Integrated Water Resources Plan (IWRP) adopted by Board with goals to increase county water conservation and recycling

1997 District installs its second CIMIS weather station in Morgan Hill

1998 District introduces Water-Wise House Call Program and Mobile Lab Program

District begins offering annual irrigation efficiency workshops for growers

2000 District introduces Commercial Clothes Washer Rebate Program

2001 District water conservation and recycling units combine to form Water Use Efficiency unit

District expands Commercial ULFT Installation Program

District expands Water Efficient Technologies Program to entire county

2002 District introduces Pre-rinse Sprayer Program for Restaurants

District begins to use a third, portable CIMIS weather station

Water Efficiency Baseline Study commences

District expands Commercial Clothes Washer Rebate Program ■

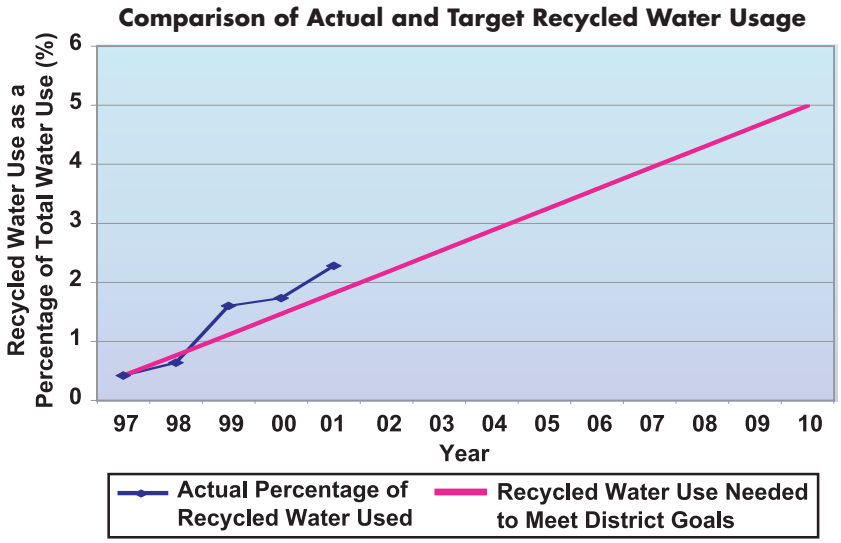
Conservation in Agriculture

»» The District began calibrating a new portable CIMIS (California Irrigation Management Information System) weather station in 2002. The station will be used at different sites in Santa Clara County to develop a regressional model and an information base in areas not covered by the District's two permanent CIMIS stations in Santa Clara and Morgan Hill.

Water Recycling

During the past three years (1999 through 2002), water savings from recycled water use has continued to increase, putting the District ahead of its 2020 target goal. Currently, recycled water is used mainly for irrigation at public, commercial and institutional large landscape sites. A smaller amount is used for industrial applications and agricultural irrigation.

It is anticipated that interest in recycled water will increase during drought years, offering the opportunity to expand programs. The District is aggressively pursuing partnerships with the county's major cities and four recycled water producers to ensure that recycled water is available to meet future demand when it arises.



The District is ahead of its target goal to have recycled water make up 10 percent of total county water use by 2020.

South Bay Water Recycling Program

The South Bay Water Recycling Program (SBWRP) produces the vast majority of Santa Clara County's recycled water for use within the cities of San Jose, Santa Clara and Milpitas. In 2001, the system produced over 6,000 of the total 8,020 acre-feet of recycled water used in the county. The program was created to reduce the environmental impact of freshwater effluent discharge into the salt marshes of the south end of San Francisco Bay, and to help protect two endangered species.

The District has been working with the City of San Jose on its recycled water program since 1994, providing financial and technical support for system expansion, and acting as a liaison with water retailers. The District also subsidizes the SBWRP at the current rate of $115 per acre-foot of recycled water.

Currently, most recycled water is used for parks, golf courses, and other large landscape irrigation, such as this demonstration plot at Guadalupe Gardens in San Jose.

Capital Projects: South Bay Water Recycling Program

»» Phase I of SBWRP construction—completed in 1999 at a cost of $140 million—consists of nearly 60 miles of pipeline, four pump stations, and a reservoir which serves over 350 customers.

»» San Jose approved an $82.5 million Phase 2 expansion in June 2001, to include additional pipeline extensions into Santa Clara and Milpitas, construction of the Silver Creek Pipeline into Coyote Valley, and added reservoirs and operational improvements to several pump stations.

»» As part of the agreement with the SBWRP, the District will cost-share the Silver Creek Pipeline extension. This pipeline will deliver recycled water to the Metcalf Energy Center, a new Calpine power plant being built in the north end of Coyote Valley. The power plant is expected to use an average of 4,000 acre-feet of recycled water per year.

»» In January 2002, the San Jose City Council and District Board of Directors entered into agreement to develop an institutional framework for long-term ownership and expansion of the SBWRP that most effectively meets the needs of the community. This collaborative effort will help balance the water supply and wastewater discharge needs of the South Bay community, now and into the future.

Part of the District's agreement with the South Bay Water Recycling Program includes improvements to several system pump stations, such as this one near San Jose State University.

Santa Clara Valley Water District
Water Use Efficiency
Recycling Timeline

1975 District conducts water recycling feasibility study with the City of Palo Alto

1977 District and City of Gilroy build recycled water system

1994 District partners with San Jose on the planning of South Bay Water Recycling Program (SBWRP)

1995 District agrees to reimburse the City of Santa Clara for recycled water delivered

1996 Integrated Water Resources Plan adopted by Board with goals to increase county water recycling and conservation

1997 District increases recycled water subsidy to $115 per acre-foot

District begins subsidizing City of Sunnyvale recycled water program

Phase 1 of South Bay Water Recycling Program completed

(continued) »

Program highlights:
Water conservation and recycling

As part of South County Recycled Water system upgrades, the District recently constructed a new booster pump station at Christmas Hill Ranch Park, which uses recycled water to irrigate large landscape areas.

Recycling Timeline
(continued)

1999 District and City of Gilroy partner to upgrade South County Recycled Water system

Recycled water use in Santa Clara County totals 5,400 acre-feet

2000 Recycled water use in Santa Clara County totals 5,968 acre-feet

2001 District begins Advanced Water Treatment Study

$82.5 million SBWRP Phase 2 expansion approved

Recycled water use in Santa Clara County totals 8,020 acre-feet

2002 District and City of San Jose enter agreement for long-term ownership of SBWRP

Construction of new booster pump station, reservoir, and pipeline extension completed for South County Recycled Water system ■

South County Recycled Water System

In 1999, the District, South County Regional Wastewater Authority (SCRWA), and the City of Gilroy entered a partnership to develop a water recycling program in South County, including future expansion of the treatment plant and delivery system. Under this agreement, SCRWA serves as the supplier, the District is the wholesaler, and the City of Gilroy is retailer for the South County Recycled Water system.

SCRWA treatment plant has a peak production potential of 3 MGD, making it capable of delivering about 1,200 acre-feet per year to golf courses, parks, and farmland along its six-mile length. Last year the system delivered 635 acre-feet of recycled water to irrigators.

Capital Projects: South County Recycled Water

»» The District's current agreement with the City of Gilroy and SCRWA includes an upgrade of the 30-year-old system, which delivers recycled water to south Gilroy. The District has budgeted over $7 million for capital expenditures from 1999 through 2003 to improve and expand the South County Recycled Water system.

»» The District has completed the design and construction of pipeline relocations and extensions at Eagle Ridge Golf Course, a new booster pump station at Christmas Hill Ranch Park, and a 1.5 million-gallon concrete reservoir above Eagle Ridge Golf Course in Gilroy. These projects provide a high-pressure, reliable, modern system to deliver recycled water to irrigators.

»» In the next few years, the District is planning to spend several more million dollars on system expansions and upgrades. A 2,500-foot extension of recycled water line will serve the new Gilroy Sports Park, scheduled to open in 2003. Negotiations are also underway to provide recycled water to a new peaker energy plant recently constructed by Calpine.

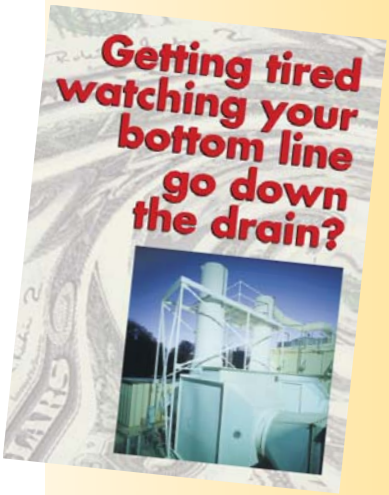
»» As part of the agreement with SCRWA and the City of Gilroy, the District, in partnership with the City of San Jose, will develop a South County Water Supply Master Plan which will become part of the District's Capital Improvement Program. The District is also working with the city to develop a wholesale and retail recycled water rate schedule.

Eagle Ridge Golf Course increased its recycled water usage after the District extended the South County Recycled Water pipeline system.

Palo Alto and Sunnyvale

The District has been providing financial support for the City of Sunnyvale's recycled water distribution program since 1997 at the rate of $115 per acre-foot. The District also has attended planning meetings with the Palo Alto Regional Water Quality Control Plant (RWQCP) and their stakeholders to help develop a long-term master plan for recycled water use in their service area.

Both the Sunnyvale Water Pollution Control Plant and the Palo Alto RWQCP are planning to expand their water recycling systems in order to meet state and federal discharge requirements. The District will continue to provide support to increase the county's recycled water use whenever possible.



District outreach in the commercial sector targets industries, institutions and businesses with the highest water usage.

WUE Education and Outreach

»» The District continued to provide education outreach last year through many venues: by staffing the hands-on WUE display at community outreach events, generating news releases and media coverage on conservation and recycling, attending trade shows and engineering conventions, and by providing conservation information on the District website.

»» The District published two new educational brochures to add to its extensive collection of conservation publications: the *Lawn Watering* guide and the *Rules of Thumb for Water-Wise Gardening*. The WUE unit also redesigned the educational display racks used in its Water Use Efficiency Nursery Program. The new, portable racks hold outdoor water conservation handouts and are located at nurseries throughout the county.

»» The WUE unit continues to offer its popular workshops to residents, landscape managers and agriculture professionals. These workshops help customers increase irrigation efficiency, conserve water, save money, and reduce pesticide and fertilizer use.

Residents who attend the District's water efficient landscaping workshops learn how to select drought resistant garden plants such as this tree mallow.

»» The District continually networks with area cities, utilities, water retailers, wastewater treatment plants, stakeholder organizations, residents, universities, the Farm Bureau, and numerous state and federal agencies to deliver efficient and cost-effective programs to the community. Other District activities include staff support to the Water Retailer's Recycling Subcommittee, the Agricultural Water Advisory Committee, the Water Reuse Foundation, and the Landscape Advisory Committee.

Conservation and Recycling Studies and Research

The WUE unit is constantly evaluating its conservation and recycling programs in order to increase water savings and fulfill its long-term IWRP goals, as well as meeting the District's Ends Policies. The WUE Master Plan will rely on data compiled from the District's numerous studies to create a long-range strategy to meet the water saving requirements of the IWRP. The WUE unit received three grants last year totaling $566,000 to fund conservation and recycling research.

Below are just a few of the numerous conservation and recycling studies which the District is conducting on its own and in cooperation with other agencies.

Currently, most recycled water is used for irrigation of large landscapes, such as the Silver Creek Valley Golf Course shown here. The District's Advanced Water Treatment Study will research expanded uses for industry, agriculture and environmental enhancement.

Research highlights FY 2002

»» In fiscal year 2002, aerial flyovers began for the District's Landscape and Agricultural Area Measurement and Water Use Budget Study—a mapping project that currently is the largest of its kind. The collected multispectral images will show landscape and agricultural areas by parcel for over 900 square miles in Santa Clara County. The images will be used to determine optimum water budgets for sites around the county.

Concurrently, the District is developing state-of-the-art, web-based software that will allow county water users to receive a site-specific optimum water budget on-line by entering their site data.

»» Last year the District began preparations for a Water Use Efficiency Baseline Study—a comprehensive survey that will provide the specific data needed to develop the Water Use Efficiency Master Plan for long-term water conservation. The study will consist of phone surveys to assess conservation attitudes throughout the county, and on-site surveys to catalogue the type and prevalence of water-using hardware in the residential, commercial and agricultural sectors.

»» The District is halfway through a two-year Advanced Water Treatment Study that will identify feasible markets for recycled water in industry, agriculture, large landscaping, and environmental enhancement, including wetlands development and aquatic habitat maintenance. Using stakeholder input, the study will investigate expanded uses for recycled water, and identify feasible water quality standards to protect the county's groundwater and environmental resources.

WUE Program Performance:
Conservation and Recycling

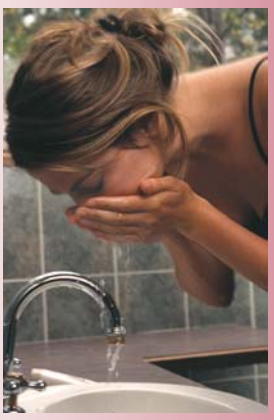
Overview

The District's Water Use Efficiency (WUE) unit is responsible for water conservation and recycling programs—both key components of the District's Integrated Water Resources Plan (IWRP) to ensure long-term water supply reliability in Santa Clara County.

Last fiscal year, water savings from the District's numerous conservation programs for residents, businesses, and agriculture reached a total of 29,000 acre-feet. In addition, county recycled water usage in 2001 totaled 8,020 acre-feet—an amount that otherwise would have come from the county's potable water supply. Both conservation and recycling programs are on-target to meet their 2020 water savings goals.

WUE programs reduce demands placed on existing water supplies, improving water supply reliability and helping to defer the cost and environmental impact of developing additional supplies. The programs also protect the South Bay salt marsh habitat by reducing freshwater effluent released from wastewater treatment facilities.

WUE conservation programs fulfill the fourteen Best Management Practices (BMPs) which the District agreed to implement by signing the 1991 Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). In addition, WUE programs support the Central Valley Project Improvement Act and the CALFED Bay-Delta Program, which addresses the environmental and water supply issues in the Bay-Delta system.



Residential water use accounts for over 50 percent of total water consumption in Santa Clara County.

By 2020, the county could experience a water supply shortage of 100,000 acre-feet. The District's conservation and recycling programs are playing a key role in meeting this shortage.

WUE Program Performance:
Water Conservation

"Water supply is reliable to meet future demands as identified in the District's Integrated Water Resources Plan (IWRP) process."
—Santa Clara Valley Water District Board Ends Policy E-2.1.3.

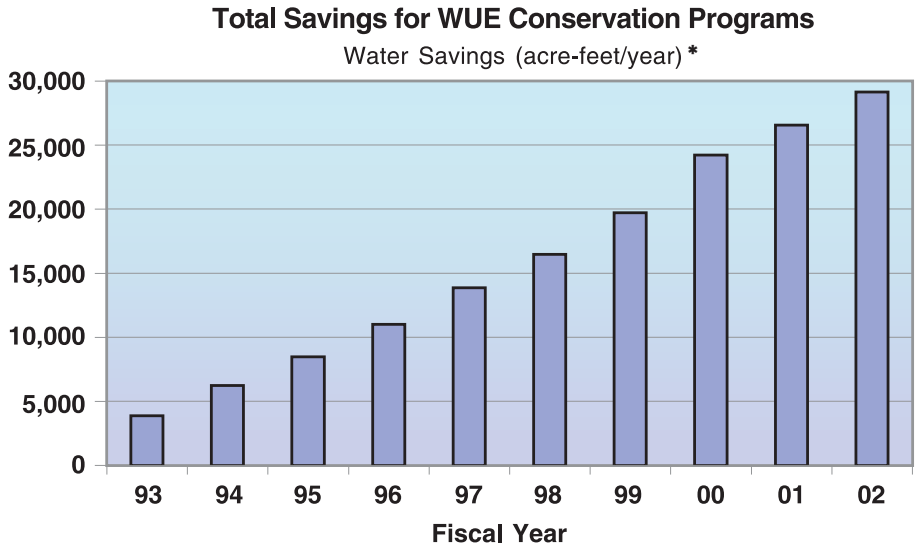
Last fiscal year, water savings from WUE water conservation programs totaled 29,000 acre-feet, putting the District on-target to meet its 2020 IWRP water savings goals

Overview

The District has over a dozen specific conservation programs, nearly all of which showed an increase in water savings last year, as well as every year since their inception. Conservation programs use a mix of incentives and rebates, free device installation, one-on-one home visits, site surveys and education outreach to reduce water consumption in homes, businesses and agriculture.

Besides meeting long-term water reliability goals, WUE programs help meet short-term demands placed on supply during critical dry periods. They also help reduce the occurrence of demand reduction requirements made to water retailers. Under the flexible IWRP strategy, short-term water conservation begins with awareness, shifts to voluntary use reduction, and relies on mandatory reduction only if the first two steps do not achieve savings goals.

Last year, water savings attributed to all WUE conservation programs for residents, business, and agriculture reached 29,000 acre-feet, putting the District on-target to meet its current IWRP conservation goals. By 2020, the District plans to save over 57,000 acre-feet (IWRP, June 1999) of water per year through its current and future conservation programs. To assure that programs have the greatest impact at lowest cost, the District partners with cities and other agencies when possible to share financial and administrative demands. The District also continually evaluates the performance of its programs to ensure that they are delivered in the most cost-effective manner possible.



*** Statistics shown in this section represent water savings from District conservation programs and The Energy Policy Act of 1992 (EPACT), which set plumbing standards for showerheads, faucets, toilets and urinals.**

Water Conservation in the Home

The District continues to expand residential programs, as this sector remains the biggest water consumer at 52 percent of total county water consumption. This amount is split fairly evenly between indoor and outdoor usages.

The District uses an integrated strategy of incentives and rebates, one-on-one home visits with free installations of water-saving devices, workshops, and outreach at community events to promote residential water savings. Last year, savings attributable to all residential conservation programs reached 22,000 acre-feet.

WATER-WISE House Calls

Water-Wise House Calls

The District performed over 5,300 residential home surveys during FY 2002—more than triple the number completed in any previous year. The increase was due in part to the hiring of an outside contractor which allowed the District to expand the program, using both staff and financial resources more efficiently.

The District performed over 5,300 Water-Wise House Calls in FY 2002, more than triple the number of any previous year.

Also in FY 2002, the District began to routinely inspect and change toilet flappers, which helped add nearly 300 acre-feet of water savings to the Water-Wise program over the last fiscal year period. These inspections are especially important since a California Urban Water Conservation Council study revealed that toilet leaks were the top reason for water waste in the home.

The District has been providing the free House Call program since 1998. The program is available for residents of single-family homes and owners/managers of apartments, condominiums, and mobile home complexes. During the survey, trained technicians check for leaks, measure flow rates, offer conservation information, and install free showerheads and aerators. Surveyors also test the customer's irrigation system for efficiency and provide personalized irrigation schedules and landscaping tips.

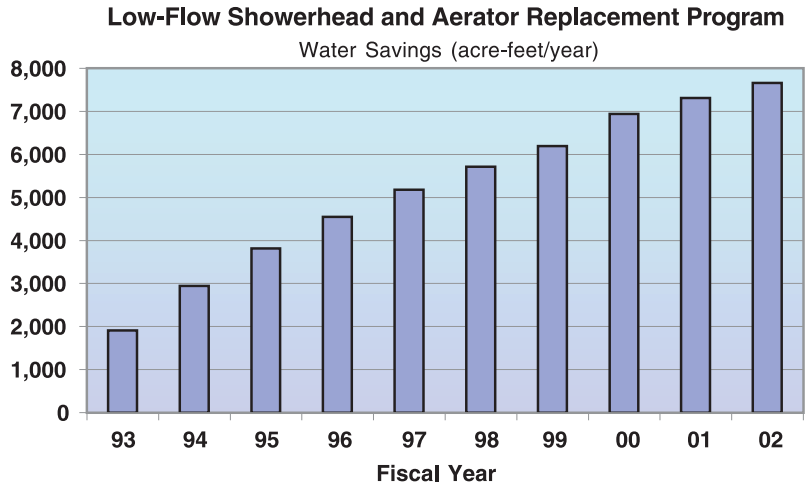
District Water-Wise House Call technicians test the efficiency of watering systems and provide irrigation schedules.

The District installed or distributed over 36,000 aerators and showerheads last year.

Low-flow Showerhead and Aerator Replacement Program

The District installed or distributed over 22,000 free aerators in FY 2002, more than double any previous year's total. Fourteen thousand low-flow showerheads also were installed or distributed, far exceeding last year's goal of 5,000. The District installs both devices during Water-Wise House Calls, and distributes them at community outreach events, by mail, on-line through the District website, and through our water retailers. The District has been offering free showerheads since 1992, and free aerators since 1996.

The showerhead and aerator retrofit program accounted for over 7,500 acre-feet in water savings in FY 2002.



In FY 2002, the District was part of a regional group of seven agencies that received a CALFED matching grant applicable for residential clothes washer rebates.

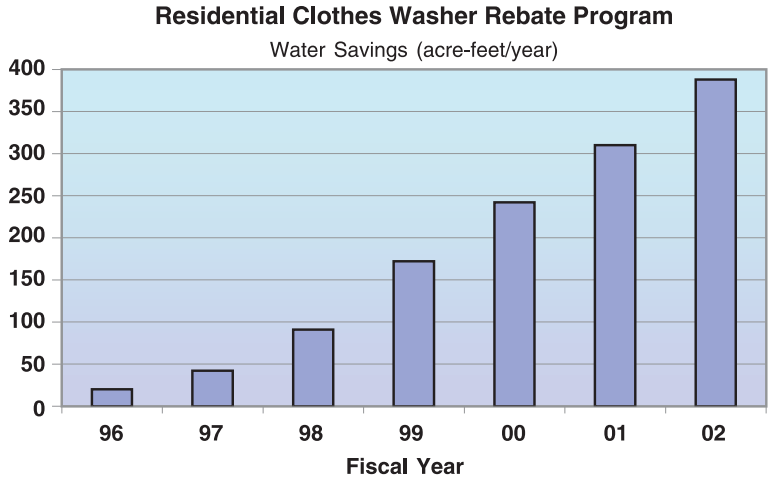
Residential Clothes Washer Rebate Program

The District continued to provide countywide rebates to residential customers who replace their inefficient clothes washers with ENERGY STAR™ machines which use about 30 percent less water and 50 percent less energy than standard-efficiency machines. The District has been offering the rebate program since 1995.

In FY 2002, the District was one of seven agencies that received a CALFED matching grant applicable for residential clothes washer rebates. This reduced the District's rebate contribution from $100 to $50. The City of San Jose contributes $25 of this amount within the cost-shared San Jose/Santa Clara Water Pollution Control Plant tributary area. The grant will continue until June 2003.

After the grants were awarded, all seven recipients, including the District, took the opportunity to jointly hire an outside contractor to administer the program for all parties. This action reduced program costs and increased efficiency for all cooperating agencies.

Residential clothes washer rebates totaled $617,000 last year, of which the District contributed $188,000. The rebate program's water savings last year totaled almost 400 acre-feet.



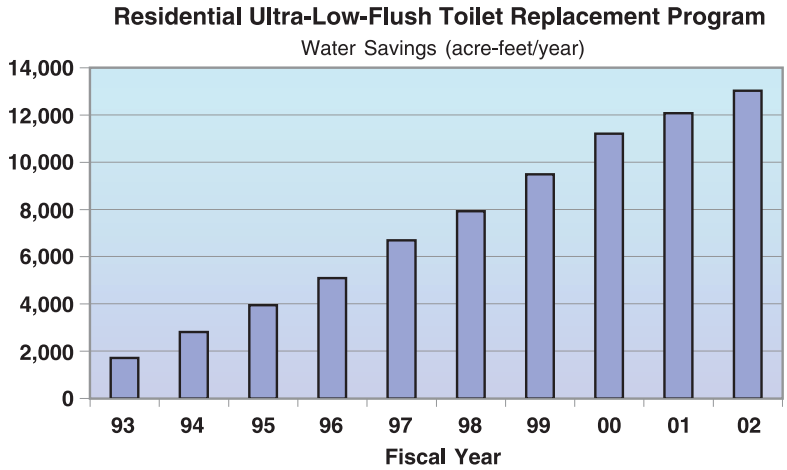
Residential Ultra-Low-Flush Toilet (ULFT) Replacement Program

The District has been administering a ULFT program for single- and multi-family dwellings since 1992. Originally administered through rebates, the program has evolved into direct installations. Over 20,000 units were installed during FY 2002, bringing the total savings to 13,000 acre-feet per year.

A new program introduced last year—the Community Partnership Program—provides free ULFTs and installation for elderly, disabled, and/or low-income residents who otherwise would have difficulty replacing their toilets.

The District also gained a new partner last year. The City of Sunnyvale, one of our retailers, is now contributing half the cost of all ULFT installations within their service area. In addition, we have continued our six-year partnership with the City of San Jose, which covers a portion of the installation cost in both single- and multi-family dwellings within the tributary area of the San Jose/Santa Clara Water Pollution Control Plant.

The District installed over 20,000 residential ULFTs during fiscal year 2002.



The District redesigned its Nursery Program display racks, which are located at nursery and garden stores in the county.

The District's Nursery Program provides gardeners with free water conservation information covering topics such as irrigation, landscaping, and the selection of drought-resistent plants such as this Gerbera daisy.

Education and Outreach to Residents

Water Use Efficiency Nursery Program

For the last four years, the District has distributed water conservation information through display racks located at county nursery and garden stores. In FY 2002, the District surveyed shop owners and redesigned the racks to improve usage. The new racks have wheels for easy relocation and are smaller and more streamlined. These new information centers contain handouts on water-wise gardening, lawn watering, drought resistant plants, drip irrigation, and District programs.

Water-Efficient Landscaping Workshops for Homeowners

Since 1993, the District has been offering an annual series of Saturday morning landscaping workshops for homeowners in Santa Clara County. The workshops are presented by landscape and irrigation experts each spring to provide practical advice on water-saving garden design, plant selection, irrigation options, and landscape maintenance. Attendees learn how to create attractive gardens while decreasing outdoor water use by 20 to 80 percent.

Other Outreach Activities

»» The District produced two new publications during FY 2002: the *Rules of Thumb for Water-Wise Gardening* and the *Lawn Watering* guide. These new booklets are part of an extensive collection of District brochures which promote WUE programs and provide education on water conservation and related issues.

»» The District promotes water conservation at community events with hands-on displays, educational handouts, and free device distribution. During FY 2002, the District attended numerous outreach events throughout Santa Clara County. Educational materials are also distributed during home surveys, workshops, on-line through the District website, and through the Water Use Efficiency Nursery Program.

»» The District provides speakers for homeowners associations, neighborhood associations, and other groups who request presentations on water conservation. District school programs also cover water conservation techniques and issues.

»» The District promotes its programs with mailings that target the high water users in the county. The District also maintains its own residential mailing list gleaned from requests at outreach events, the Water Conservation Hotline, and the District website. Water conservation tips and program promotion have also been included as inserts in retailers' water bills.

The Water Use Efficiency educational display is a common sight at community events in Santa Clara County.

Water Conservation in Business

The Water Use Efficiency unit combines education, technical assistance, and financial incentives to encourage commercial, industrial, and institutional water users to reduce water consumption. Conservation programs help businesses save on water, energy, and sewer costs; they also reduce wastewater flows to area treatment plants, which protects the Bay's salt marsh habitat.

Last year, water savings attributable to business conservation programs reached 6,000 acre-feet. Whenever possible, the District partners with other agencies and local cities to reduce administrative overhead and enhance the efficiency of programs.

Irrigation Technical Assistance Program

The District has been providing technical assistance to large landscape managers since 1995 through the Irrigation Technical Assistance Program (ITAP). Technicians providing the free on-site evaluation check the irrigation system for deficiencies, determine an optimum water use budget, and establish an efficient watering schedule.

ITAP participants potentially can save up to 1,500 gallons per day per acre, representing a potential $1,000 per acre cost savings annually. Each year the District recognizes ITAP "Showcase Sites"—attractive landscape areas which demonstrate how improved irrigation efficiency saves money and supports healthy plantings.

A District technician inspects sprinkler heads during an ITAP survey.

In FY 2002, the Friends of the San Francisco Estuary presented an Outstanding Comprehensive Conservation and Management Plan Implementation Project award to the District in recognition of the program's vital role in reducing freshwater discharge into the South Bay's sensitive saltwater marsh habitat.

The District provided 60 sites with ITAP services last year. Since the program's inception, over 400 parks, golf courses, commercial sites, and residential developments have received ITAP services.

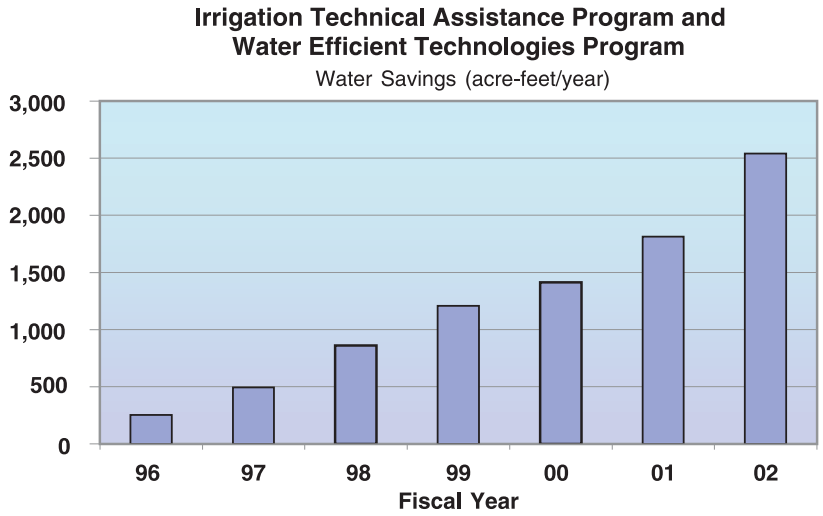
A technician checks the distribution uniformity of an irrigation system during an ITAP evaluation. Last year the Friends of the San Francisco Estuary recognized the ITAP Program for its role in protecting South Bay marsh habitat.

Water Efficient Technologies Program

In FY 2002, the District expanded the Water Efficient Technologies (WET) program to include Morgan Hill, Gilroy, Palo Alto, Mountain View, Los Altos, Los Altos Hills and Sunnyvale. These cities join the rest of the county in the WET program, which for the last six years has been cost-shared by the District and the City of San Jose Water Efficiency Program for users within the San Jose/Santa Clara Water Pollution Control Plant tributary area only. The District continues to cost-share the program with the City of San Jose, but covers total cost for the program expansion.

The WET program offers rebates from between $400 to $50,000 to commercial, industrial and institutional water customers for making process and equipment changes which reduce water use and wastewater flows. Beyond the initial rebate amount, participants continue to save year after year on water and sewer fees; energy and chemical costs may also be reduced. The program started ten years ago when, to protect wetland health, the state mandated a wastewater flow cap on the City of San Jose.

Two Palo Alto businesses received rebates last year through the District's expanded program. The Palo Alto Research Center, a premier technology research company, received a $8,720 rebate for retrofitting their liquid ring vacuum pump with a dry pump system which does not require water to operate. Before the retrofit, the old pump system used three gallons of water per minute, 24 hours a day, 365 days per year—over 1.6 million gallons annually.



Roche Bioscience, a pharmaceutical research firm, received a $3,984 rebate for converting two liquid ring pumps to dry pump systems, saving 745,008 gallons per year.

Stanford Hospital applied for a rebate last fiscal year and is retrofitting their x-ray processing machines so that they no longer require water for operation. The District is currently in the process of determining the potential water savings of this conservation project.

Over the past six years, the District has contributed over $414,000 in rebates for projects in the cost-shared WET program, which have shown a flow savings of over 1.1 million gallons per day. The District's new, expanded WET program paid $12,700 in rebates for the two completed projects, which save over 6,500 gallons of water per day.

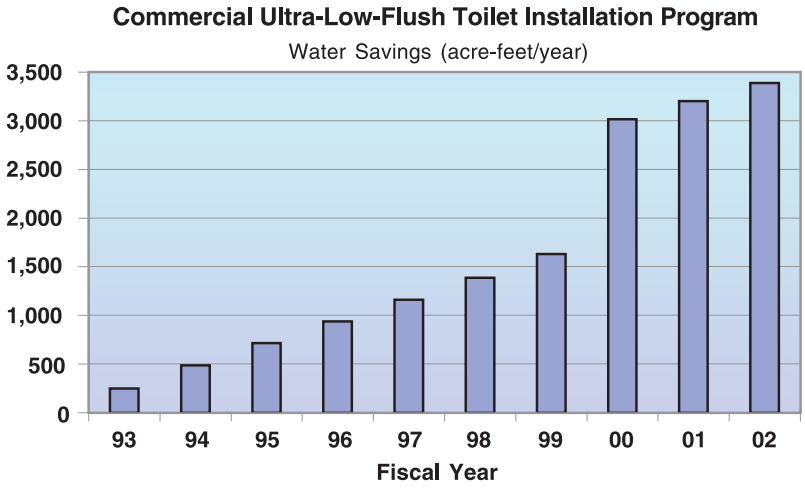
Palo Alto Research Center, a premier technology research company, recently received a $8,720 rebate through the expanded Water Efficient Technologies program.

Commercial Ultra-Low-Flush Toilet Installation Program

Last fiscal year the District expanded the commercial ULFT program to provide free installation for restaurants, food stores, wholesale stores, retail stores, and gas stations throughout the county. The District targeted these market segments because the California Urban Water Conservation Council issued a report showing that toilet installations in these types of businesses save the most water per unit per day. The new program provides removal and recycling of old toilets, and installation of new ULFTs at no cost to qualifying businesses.

The District also continues to cost-share its commercial ULFT voucher program with the City of San Jose. Since its inception in 1992, the commercial ULFT program has been responsible for over 16,000 acre-feet in water savings.

The District introduced a new commercial ULFT program last year after studies showed that toilet installations in specific types of businesses saved the most gallons per unit per day.



Pre-rinse Sprayer Program for Restaurants

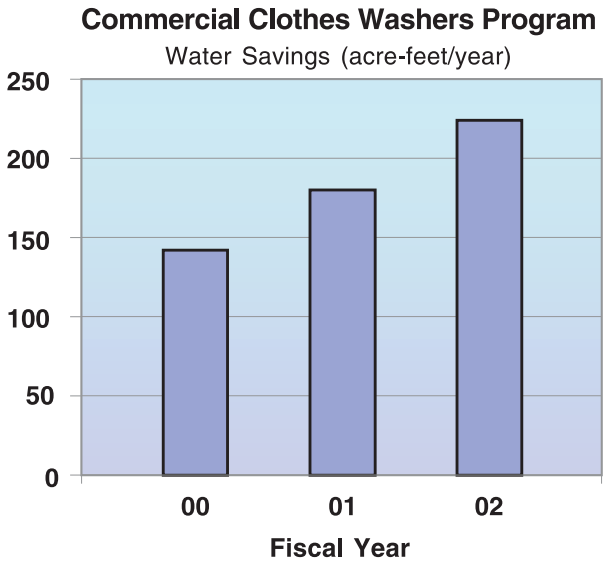
Last June, the District introduced a new program which replaces the inefficient dish sprayers used in restaurants to rinse plates before dishwasher loading. The new sprayer nozzles cost $42 and save an average of 200 gallons of water per unit per day. When technicians perform installations for the District commercial ULFT program they also offer the new sprayer valve attachment. By installing two devices during one service call, the District has increased water savings and program efficiency.

The District's new Commercial Clothes Washer Rebate Program received a Friends of the San Francisco Estuary award last year to recognize the program's role in reducing treated wastewater discharge into the South Bay.

Commercial Clothes Washer Rebate Program

Last year the District introduced this new business conservation program, offering rebates between $125 and $450 for each purchased or leased commercial ENERGY STAR™ high-efficiency clothes washer. To help fund the program, the District established cost-sharing agreements with Pacific Gas and Electric, the City of San Jose Water Efficiency Program, the City of Santa Clara and the City of Palo Alto. The District pays the total rebate costs outside these service areas.

In FY 2002, the Friends of the San Francisco Estuary presented an Outstanding Comprehensive Conservation and Management Plan Implementation Project award to the District in recognition of the program's vital role in reducing freshwater effluent into the South Bay's sensitive saltwater marsh habitat.



Education and Outreach for Business

Landscape Irrigation Workshops for Professionals

The District has earned a reputation for offering practical, hands-on workshops that increase irrigation efficiency, conserve water, and cut overhead. The annual seminars have waiting lists each year and consistently receive high marks on attendee evaluations.

The District's professional irrigation workshops have a waiting list each year.

Each year the District co-hosts a two-day workshop for landscape professionals on Landscape Irrigation Auditing (a prerequisite for the Landscape Auditor Certification exam offered by the Irrigation Association), and a one-day workshop on Water Budgeting. The conservation information provided has a significant impact since the majority of attendees are professional managers responsible for multiple landscape sites, or government employees who pass on water-saving techniques to a wider audience. The seminars are presented in partnership with Cal-Poly's Irrigation Training and Research Center.

The District also conducts a special one-day water conservation workshop each year for landscape contractors; topics change annually as irrigation issues are identified in the field. In FY 2002, the workshop covered *Irrigation Scheduling and Valve Troubleshooting*. The District offers the contractor workshops in both English and Spanish.

A District workshop leader demonstrates the performance of different irrigation nozzles during a landscape irrigation workshop.

Other Outreach Activities

»» Water Use Efficiency unit staff regularly attend trade shows and conventions where they promote water conservation, recycling, and District programs through educational displays, publications, and one-on-one contact.

»» Morgan Hill and San Jose newspapers printed articles last fiscal year on the District's ULFT installation program, and a local TV news station highlighted the Irrigation Technical Assistance Program and the conservation recommendations it provided to Valley Medical Center. The Silicon Valley Manufacturing Group and local chambers of commerce also have published District conservation information.

Get up to $450 for Replacing Each of Your Old Washing Machines!

The Santa Clara Valley Water District is offering rebates of up to $450 per unit on purchased and leased high-efficiency washing machines.

In addition, high-efficiency washing machines can help save you money on your water and energy bills. And you may be eligible for a tax credit.

To find out more, call the Santa Clara Valley Water District at (408) 265-2607, ext. 2707.

Brought to you and funded by:
Santa Clara Valley Water District
San Jose/Santa Clara Water Pollution Control Plant
Pacific Gas and Electric Company
WE DELIVER ENERGY
Silicon Valley Power
UTILITIES

District outreach in the commercial sector targets industries, institutions and businesses with the highest water usage.

»» The District actively seeks participants for its water conservation programs by sending targeted mailings to businesses in Santa Clara County that have high water usage. Targeted businesses include commercial laundries, hospitals, restaurants, gas stations, industries with water-dependent processes, and other businesses with high water consumption. The District also places ads and articles in specialized trade magazines.

Water Conservation in Agriculture

The District's Water Use Efficiency unit uses financial incentives, education, and technical assistance to encourage growers to reduce water use with efficient irrigation practices and scheduling. District agriculture programs also support the Central Valley Project Improvement Act, which helps protect the San Francisco Bay-Delta Estuary.

Last fiscal year the District's agricultural conservation programs were responsible for identifying 270 acre-feet of potential water savings.

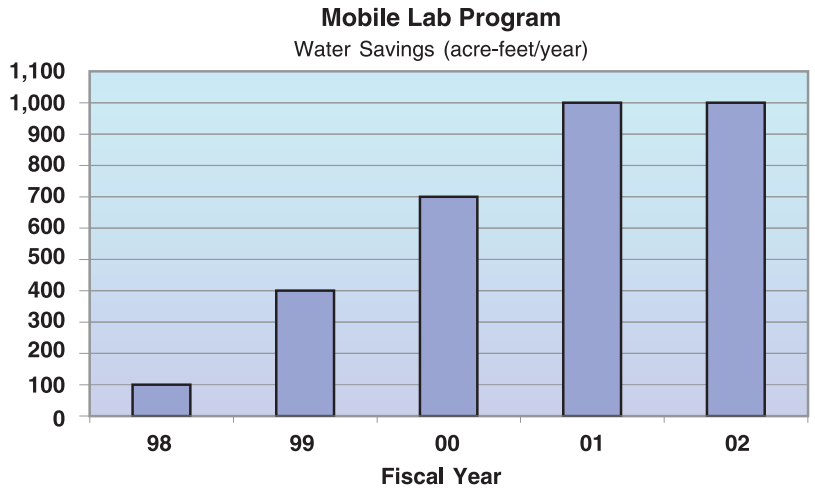
The Mobile Lab program provides free on-site irrigation system and pump evaluations to farmers and greenhouse operators.

Mobile Lab Program

The District began the Mobile Lab Program in 1998 to help growers assess the efficiency of their irrigation and fertilization practices. Growers get a rebate on groundwater withdrawal fees as an incentive to participate. The program also provides compliance with the Central Valley Project Improvement Act.

Mobile Lab provides free on-site irrigation system and pump evaluations to farmers and greenhouse operators. Program technicians measure the distribution uniformity of the system and test pump effectiveness. A long-range goal of Mobile Lab is to promote the efficient use of recycled water for agricultural irrigation.

Since its inception, the Mobile Lab program has provided 128 on-site evaluations to 53 growers, representing a total of 2,895 acres. Potential water savings of 3,178 acre-feet has been identified.



Mobile Lab also provides support to the District's Infield Nutrient Assessment Assistance Program (administered by the District's Groundwater Management unit), which conducts on-site trials in grower fields to demonstrate efficient fertilization practices. Mobile Lab conducts assessments on grower plots to evaluate how irrigation practices affect fertilizer use efficiency. By fine-tuning their irrigation systems, growers save water and prevent groundwater pollution by reducing the amount of nitrogenous fertilizer that leaches through the soil.

The District owns and maintains two CIMIS weather stations which provide growers with information to make efficient water scheduling decisions.

California Irrigation Management Information System (CIMIS)

This valuable free service provides current reference crop evapotranspiration data to help managers of nurseries, golf courses, parks, agricultural cropland, and other areas with irrigation scheduling decisions. The District owns and maintains two CIMIS weather stations in Santa Clara County, one at the University of California field station in downtown San Jose (since 1987), and one at Live Oak High School in Morgan Hill (since 1997). The weather stations measure sunlight intensity, humidity, wind, and temperature to estimate reference evapotranspiration.

In FY 2002, the District began calibrating a new, portable weather station at the San Jose CIMIS site. Once calibration is complete in 2003, the District will be able to move the station to different sites to develop an information base for specific areas in the county where permanent weather stations do not exist. This long-range project will give landscape managers in local microclimates more accurate data for their irrigation decisions.

The District's CIMIS stations are part of a statewide network of stations from which the California Department of Water Resources (DWR) central computer in Sacramento downloads data every night. Growers can access current irrigation scheduling information around-the-clock by visiting the DWR website at www.cimis.water.ca.gov.

Last year District agriculture workshops covered efficient application of fertilizers through irrigation, which helps reduce water usage and groundwater pollution.

Education and Outreach for Agriculture

Seminars for Agriculture Professionals

Since 1998, the District has been presenting two workshops annually for growers, one in April and one in December, on topics relating to irrigation, fertilizer use efficiency, District programs, farm safety, and legal compliance. All workshops are presented with real-time Spanish translation.

December 2001 seminar topics included nitrogen fertilization and irrigation, workplace safety, respirator use, and an overview of services available from the District. The April 2002 workshop, *Chemigation and Irrigation Management Demonstration*, covered efficient application of fertilizers and chemicals through irrigation systems. The District also presented recent findings from its In-field Nutrient Assessment Assistance Program.

These seminars provide continuing education credits for growers' Private Applicator Certificates. Ongoing partners in providing workshops are: the University of California Cooperative Extension, the Natural Resource Conservation Service, the California State Department of Pesticide Regulation, and the Santa Clara County Agricultural Commissioner's office.

WUE Program Performance:
Water Recycling

Overview

District projections show that before the year 2020, Santa Clara County will likely experience a 100,000 acre-foot water shortage during critically dry years. Along with water conservation, water recycling is identified in the District's Integrated Water Resources Plan (IWRP) as a key component in meeting this shortfall. Using recycled water for irrigation and other uses frees up potable water for urban use, and protects the Bay's salt marsh habitat by reducing freshwater effluent released from wastewater treatment facilities.

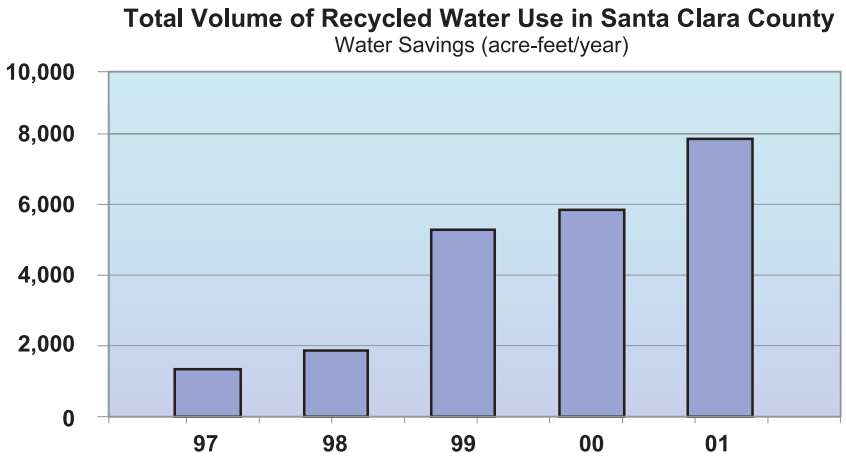
The District Board's Ends Policies state that recycled water use will make up 5 percent of total county water use (20,000 AFY) by 2010, and 10 percent of total water use (45,000 AFY) by 2020. These targets are reviewed annually during the review of Board policies. During the past three years (1999 through 2002), recycled water use in the county has surpassed targets, putting the District ahead of its 2020 goal.

The District's current approach is to develop partnerships with the cities and publicly-owned wastewater agencies that produce and/or distribute recycled water. By laying the groundwork for new programs and studying recycled water uses and issues, the District will be ready to create partnerships and systematically expand the countywide water recycling system. Being prepared for expansion will be critical during drought years when demand for recycled water is likely to increase.

The District has entered recycling partnerships with two of the four recycled water producers in Santa Clara County: the South Bay Water Recycling Program (SBWRP) operating out of the San Jose/Santa Clara Water Pollution

"Target 2020, water recycling accounts for 10 percent of total water use in Santa Clara County."
— Santa Clara Valley Water District Board Ends Policy E-2.1.6.2.

During the past three years, county recycled water use has exceeded targets, putting the District ahead of its 2020 goal.



"Water recycling is expanded within Santa Clara County in partnership with the community, consistent with the District's Integrated Water Resources Plan (IWRP) . . ."
—Santa Clara Valley Water District Board Ends Policy E-2.1.6.

Control Plant, and the South County Regional Wastewater Authority (SCRWA) which is located in the City of Gilroy. The District is pursuing a greater involvement with recycling programs for the two remaining producers: the Sunnyvale Water Pollution Control Plant (Sunnyvale WPCP) and the Palo Alto Regional Water Quality Control Plant (Palo Alto RWQCP).

Countywide Recycled Water Use and Total Water Use
(acre-feet/year)

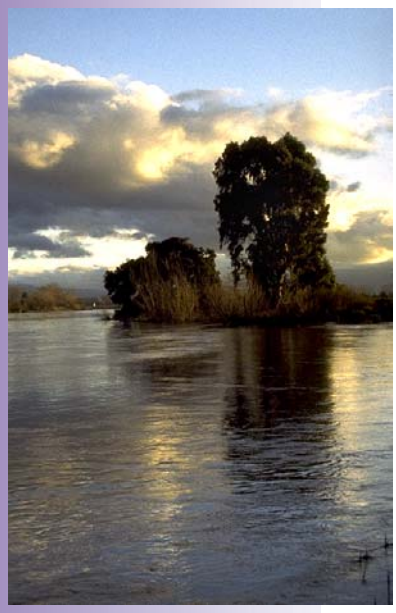
Calendar Year	South Bay Water Recycling Program	Sunnyvale Water Pollution Control Plant	South County Regional Wastewater Authority	Palo Alto Regional Water Quality Control Plant	Total Recycled Water Used in the County	Total Water Use
1997	848	0	340	200	1,388	390,190
1998	1,545	0	336	63	1,944	349,480
1999	4,031	639	651	63	5,384	373,990
2000	4,842	317	746	63	5,968	383,331
2001	6,002	1,320	635	63	8,020	383,470

South Bay Water Recycling Program

The South Bay Water Recycling Program produces the majority of all recycled water delivered within Santa Clara County. In 2001, the system produced over 6,000 of the total 8,020 acre-feet of recycled water used in the county. The SBWRP was created to reduce the environmental impact of freshwater effluent discharge into the salt marshes of the south end of San Francisco Bay, and to help protect two endangered species: the California clapper rail and the salt marsh harvest mouse. The state requires that the San Jose/Santa Clara Water Pollution Control Plant keep summer wastewater flows below 120 million gallons per day. Exceeding this amount could trigger a halt to future housing, retail and commercial growth in Silicon Valley.

The District has been working with the City of San Jose on its recycled water program since 1994, providing financial and technical support for planning, design, construction, and inspection of the recycled water system, and acting as a liaison with water retailers. The District also subsidizes the SBWRP at the current rate of $115 per acre-foot of recycled water. The District has been providing a financial incentive since 1998. The partnership between the District and the City of San Jose provides for the distribution of recycled water within the Cities of San Jose, Santa Clara and Milpitas.

In January 2002, the San Jose City Council and District Board of Directors agreed to develop an institutional framework for the long-term ownership, operation, maintenance, and future expansion of South Bay Water Recycling that most effectively meets the needs of the community. This



Using recycled water for irrigation reduces freshwater effluent discharge into the sensitive salt marshes of the south Bay, helping protect the habitat of two endangered species.

collaborative effort will define the relationship between the District and the SBWRP, and will help balance the water supply and wastewater discharge needs of the South Bay community, now and in the future. Several meetings have already been held in this collaborative effort and substantial progress has been made; meetings will continue into fiscal year 2003.

The Santa Clara practice facility of the San Francisco Forty-Niners is one of over 350 sites irrigated with water from the South Bay Water Recycling Program; the SBWRP delivered over 6,000 acre-feet of recycled water last year.

South Bay Water Recycling Program Capital Projects

»» Phase I of SBWRP construction—completed in 1999 at a cost of $140 million—consists of nearly 60 miles of pipeline, four pump stations, and a reservoir. The system is capable of delivering 21 million gallons per day (MGD) and so far has had deliveries up to 10 MGD on hot summer days. It serves over 350 customers, mainly for landscape irrigation at parks, schools, and golf courses. Recycled water is also used in some local industrial cooling towers.

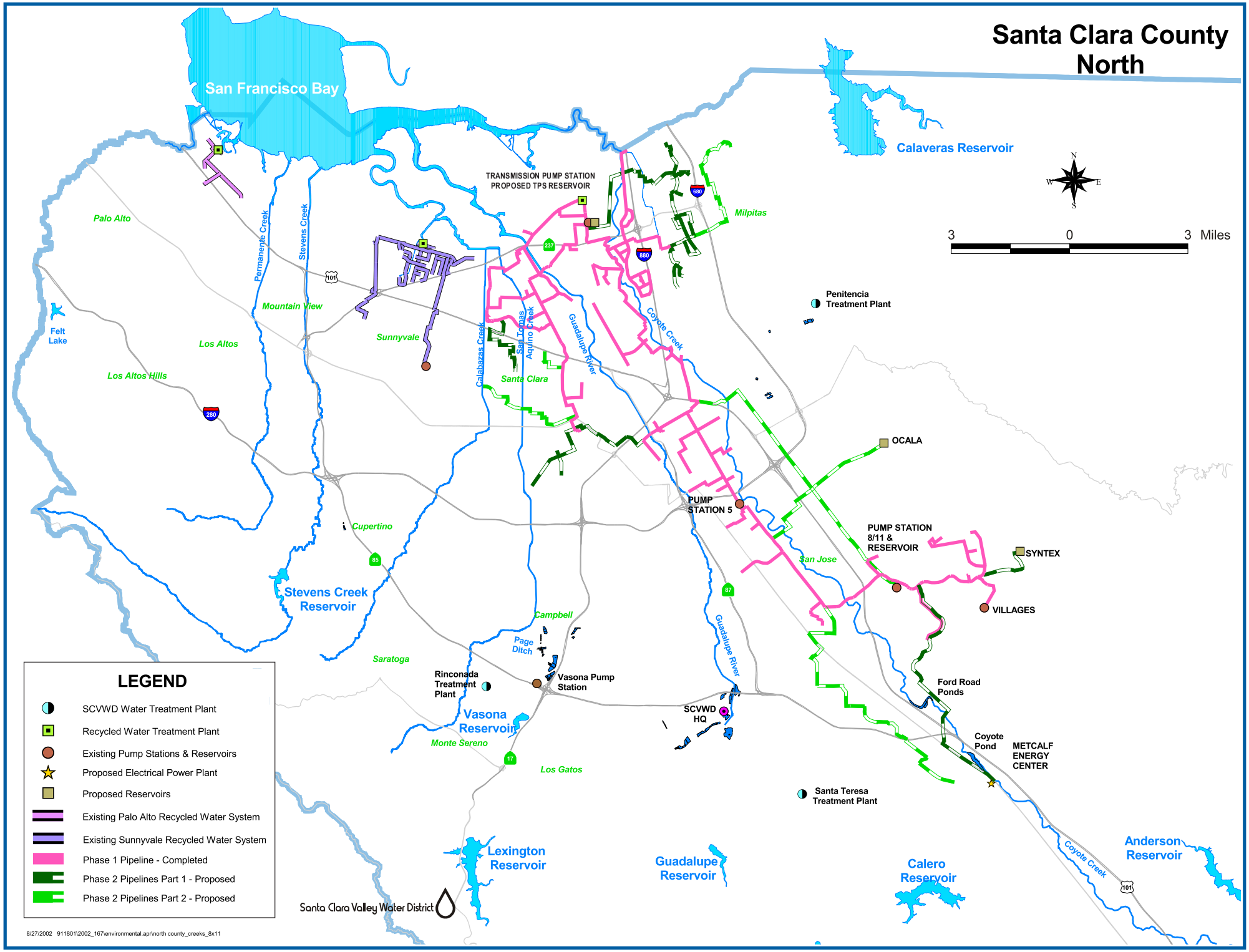
»» San Jose approved an $82.5 million Phase 2 expansion of the SBWRP in June 2001. The expansion includes additional pipeline extensions into Santa Clara and Milpitas, construction of the Silver Creek Pipeline into Coyote Valley in south San Jose, and additional reservoirs and operational improvements to several pump stations to increase the system's reliability.

»» As part of the agreement with the SBWRP, the District will contribute 25 percent of the cost for construction of the Silver Creek Pipeline extension. This project will deliver recycled water to the Metcalf Energy Center, a new power plant being built by Calpine in the north end of Coyote Valley. The power plant is expected to use up to 4 MGD during the summer, with an average usage of about 4,000 acre-feet per year. The District's cost-share for extending the pipeline is estimated at $6.8 million; target date for completion is spring of 2004. The District is also developing plans to extend the system further south in the future to serve recycled water to golf courses and agricultural customers in the Morgan Hill and Gilroy areas.

Most recycled water is used to irrigate parks, golf courses, and other large landscape areas such as Guadalupe Gardens in San Jose.

The Silver Creek pipeline extension will deliver recycled water to the Metcalf Energy Center, a new Calpine power plant being built in Coyote Valley.

Santa Clara County North



South County Recycled Water

In 1977 the District, the City of Gilroy, and the Gavilan Water Conservation District began a partnership to construct and operate a recycled water system extending from the South County Regional Wastewater Authority (SCRWA) treatment plant southeast of Gilroy to several customers along Hecker Pass Road. Due to the low quality of the water and recurring operational problems, the system operated sporadically for about 20 years.

In 1999, the District, SCRWA, and the City of Gilroy entered a partnership agreement to develop a water recycling program in south county and provide for future expansions of the treatment plant and delivery system. Under this agreement, SCRWA serves as the supplier, the District is the wholesaler, and the City of Gilroy is the retailer. The recycled water delivery system in south county is now referred to as the South County Recycled Water system. Currently, the District takes delivery of the recycled water at the SCRWA treatment plant in southeast Gilroy and pumps it through a distribution system to a city park and a championship golf course in southwest Gilroy. Last year the system delivered 635 acre-feet of recycled water to irrigators.

Last year the South County Recycled Water system delivered a total of 635 acre-feet of recycled water to irrigation sites such as the Eagle Ridge Golf Club.

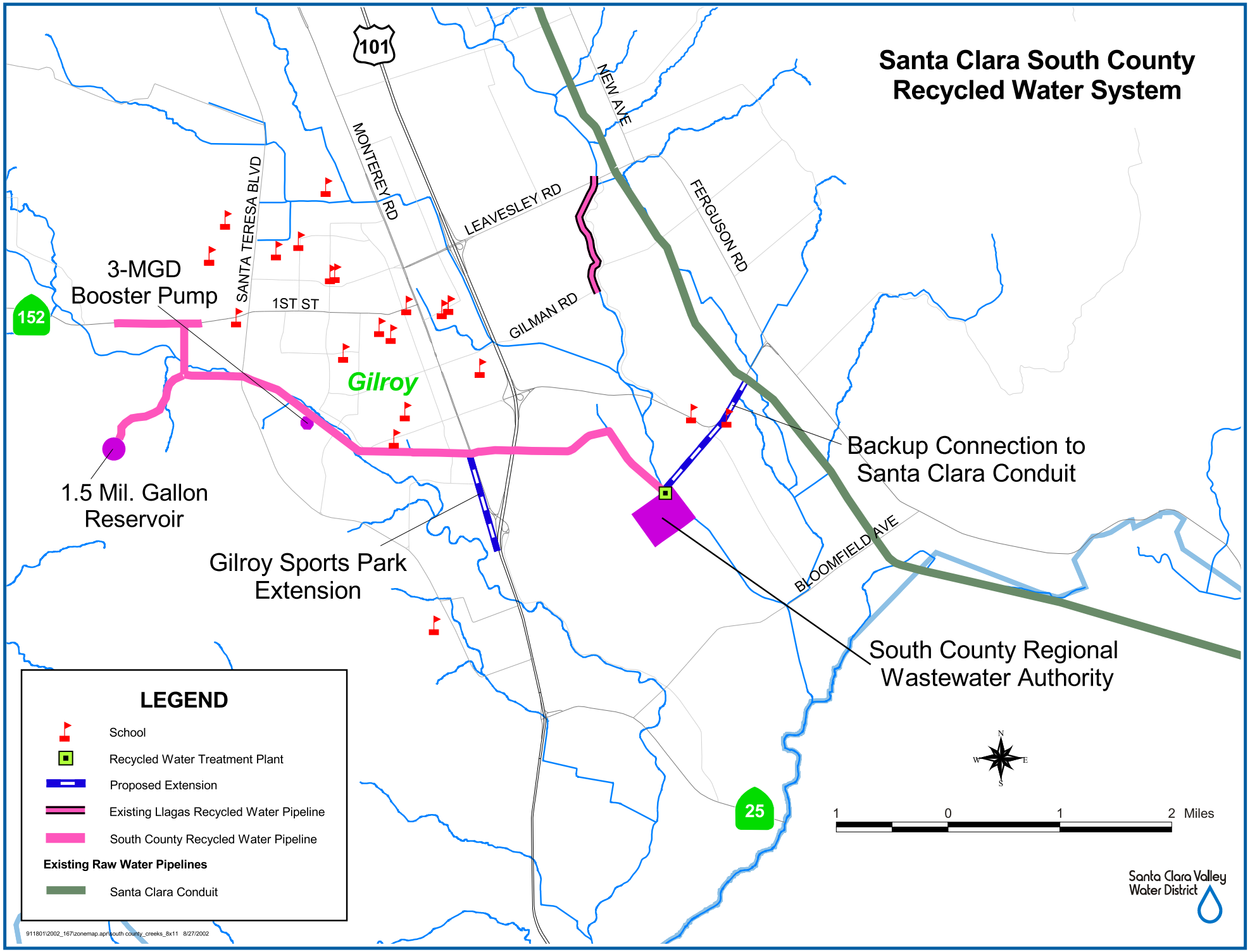
South County Recycled Water Capital Projects

»» The District's current agreement with the City of Gilroy and SCRWA includes an upgrade of the 30-year old system, which delivers recycled water to south Gilroy. SCRWA has a peak production potential of 3 MGD. Using this peak production rate, the South County Recycled Water system can deliver approximately 1,200 acre-feet of water per year to golf courses, parks, and farmland along its six-mile length.

»» The District has budgeted over $7 million for capital expenditures from 1999 through 2003 to improve and expand the system. As part of the upgrades, the District has completed the design and construction of pipeline relocations and extensions at Eagle Ridge Golf Club, a new booster pump station at Christmas Hill Ranch Park, and a 1.5 million-gallon concrete reservoir above Eagle Ridge Golf Club in Gilroy. Now in operation, these projects provide a high-pressure, modern system to deliver recycled water to irrigators.

»» In the next few years, the District is planning to spend several more million dollars on the South County Recycled Water system to cover pipeline extensions, corrosion protection systems, and a connection to the Santa Clara Conduit to serve as a backup source for raw water. A 2,500-foot extension of recycled water line will serve the new Gilroy Sports Park, scheduled to open in 2003.

The District's 1.5 million gallon recycled water reservoir in Gilroy serves as principle storage for the South County Recycled Water system.


Santa Clara South County
Recycled Water System
101
152
25
MONTEREY RD
SANTA TERESA BLVD
1ST ST
LEAVESLEY RD
GILMAN RD
NEW AVE
FERGUSON RD
BLOOMFIELD AVE
Gilroy
3-MGD
Booster Pump
1.5 Mil. Gallon
Reservoir
Gilroy Sports Park
Extension
Backup Connection to
Santa Clara Conduit
South County Regional
Wastewater Authority
LEGEND
School
Recycled Water Treatment Plant
Proposed Extension
Existing Llagas Recycled Water Pipeline
South County Recycled Water Pipeline
Existing Raw Water Pipelines
Santa Clara Conduit
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2 Miles
Santa Clara Valley
Water District
911801\2002_167\zonemap.apr\south county_creeks_8x11 8/27/2002

»» The District and the City of Gilroy are currently negotiating with Calpine to provide recycled water to a new peaker energy plant they have recently constructed adjacent to Llagas Creek just north of the SCRWA treatment plant.

»» As part of the agreement with SCRWA and the City of Gilroy, the District will develop a South County Water Supply Master Plan which will become part of the District's Capital Improvement Program. The District is also working with the city to develop a wholesale and retail recycled water rate schedule.

As part of the South County Recycled Water upgrade, the District constructed this new booster pump station at Christmas Hill Ranch Park.

Palo Alto and Sunnyvale

»» The District has attended planning meetings with the Palo Alto Regional Water Quality Control Plant (RWQCP) and their stakeholders to help develop a long-term master plan for the future of recycled water in their service area. Once this plan is developed, the District will define its role in supporting Palo Alto RWQCP recycling goals, which include a possible system expansion and grant applications for feasibility studies. The RWQCP serves Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford University and the East Palo Alto Sanitary District.

»» The District has been providing financial support for the Sunnyvale Water Pollution Control Plant's (WPCP) water recycling program since 1997 at the rate of $115 per acre-foot. Both the Sunnyvale WPCP and the Palo Alto RWQCP are planning to expand their water recycling systems in order to meet state and federal discharge requirements. The District will continue to promote dialogue and provide support for expanding the programs whenever possible.

Water Recycling Outreach and Education

»» The District networks with area cities and wastewater treatment plants to ensure that the cost of future water supply and sewage treatment is balanced to provide the most efficient use of resources for the community. The District also provides staff support for its Water Retailer's Recycling Subcommittee, Agricultural Water Advisory Committee, and Landscape Advisory Committee. Staff members also track technical and regulatory developments that affect the production and use of recycled water, and participate in statewide recycling organizations and activities.

»» The District and the SBWRP have produced a public education handout, *The South Bay Water Challenge*, to inform residents about the uses of recycled water and the environmental impact of wastewater discharge into the Bay. The District also promotes water recycling at community events with hands-on displays and educational literature. Recycling information is also available on the District's website at www.valleywater.org.

This pubic education brochure explains the relationship between conservation, water recycling, and the environmental impact of wastewater discharge.

Water Use Efficiency:
Program Drivers and Partnerships

"Water recycling is expanded within Santa Clara County in partnership with the community . . ."
— Santa Clara Valley Water District Board Ends Policy E-2.1.6.

WUE Program Drivers

The water conservation and recycling programs in the District's WUE unit reduce demands placed on existing water supplies, helping to defer the cost and environmental impact of developing additional supplies. The programs also protect the South Bay salt marsh habitat by reducing freshwater effluent released from wastewater treatment facilities.

Various drivers facilitate the District's water use efficiency goals. Efforts also are helped by ongoing partnerships that allow local agencies, cities, stakeholders and water customers to work together for the good of all. Listed below are the main drivers which support the District's water conservation and recycling programs.

District Board of Directors Ends Policy

The District Board of Directors Ends Policy No. E-2.1. states, "There is a reliable supply of healthy, clean drinking water." Under this Ends Policy, it also states that "The water supply is reliable to meet current demands" (E-2.1.2.), and "The water supply is reliable to meet future demands as identified in the District's Integrated Water Resource (IWRP) process."

Ends Policy E-2.1.6. states, "Water recycling is expanded within Santa Clara County in partnership with the community, consistent with the District's Integrated Water Resources Plan (IWRP), reflecting its comparative

The District's Integrated Water Resources Plan (IWRP) was developed with input from local stakeholders to meet water demands in Santa Clara County through the year 2020.

Water Use Efficiency programs support the CALFED Bay-Delta Program, which is helping to reduce impacts on endangered species such as this California clapper rail.

cost assessments and other Board policies." Targets indicated by this Ends Policy include water recycling accounting for five percent of total water use by 2010 in Santa Clara County, and ten percent of total water use by 2020.

District Integrated Water Resources Plan

The Integrated Water Resources Plan (IWRP), developed with input from local stakeholders, is the District's primary driver to meet water demands in Santa Clara County through the year 2020. This long-range strategy currently has a goal to save 57,000 acre-feet of water per year by 2020 through its conservation programs. The IWRP also identifies water recycling as a key component of it water supply strategy.

Memorandum of Understanding with the California Urban Water Conservation Council (CUWCC)

Besides these internal mandates for water conservation and recycling, state and federal mandates also commit the District to implement specific urban and agricultural water efficiency programs. The District was one of the first signatories to the voluntary CUWCC 1991 Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), which instituted conservation Best Management Practices (BMPs). District WUE conservation programs fulfill all fourteen BMPs for the residential and commercial sectors. As a water wholesaler, the District also assists water retailers in implementing the BMPs.

Water Use Efficiency Grant Awards

Program	Description	Grant Award	Total Cost	Schedule
Water Softener Replacement Pilot Program Study	Rebate for residents who replace or remove inefficient water softeners	$60,000	$103,927	July 2002 to June 2003
Dedicated Landscape Meter Program	Provides dedicated landscape meters for large irrigators	$100,000	$202,155	July 2002 to June 2003
Landscape and Agricultural Area Measurement and Water Use Budgets Study	Aerial mapping project to create countywide water budget database	$406,000	$635,712	January 2002 to June 2003
Residential Clothes Washer Rebate Program	Residential rebates for Energy Star™ clothes washers	$1,750,875 (regionally shared)	$1,750,875 (regionally shared)	January 2002 to June 2003
Pre-rinse Sprayer Program for Restaurants	Replaces inefficient sprayers with water-saving sprayers	$482,081 (regionally shared)	$482,081 (regionally shared)	July 2002 to June 2003

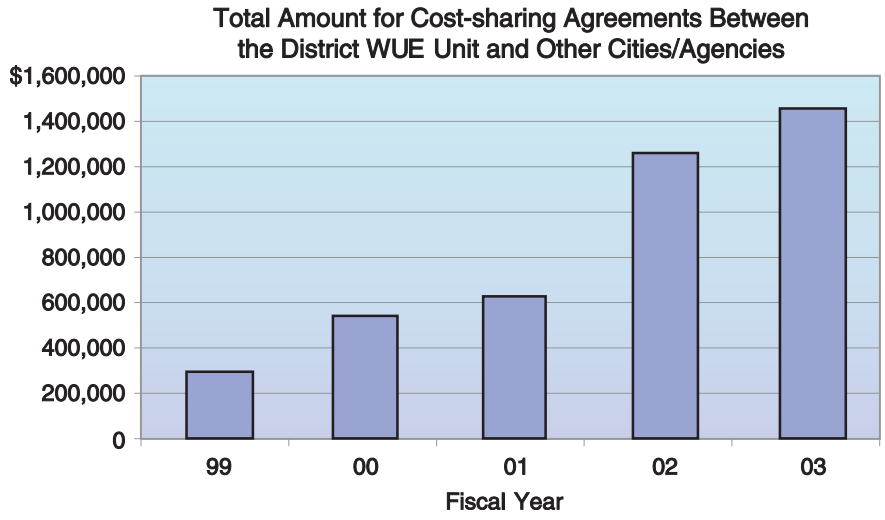
The District collaborates with universities and state agencies to conduct irrigation efficiency workshops for large landscape managers and agricultural water users.

CALFED Bay-Delta Program

WUE conservation and recycling programs also support the CALFED Bay-Delta Program, a coalition of stakeholders and local, state, and federal agencies to develop a long-term plan to restore the San Francisco Bay/Sacramento-San Joaquin Delta estuary ecosystem. More than half the water used in Santa Clara County is imported from this source. To sustain wetland health, the state has established limits for wastewater flow discharged into the Bay-Delta. Exceeding these caps could trigger a halt to future housing, retail, and commercial growth in Silicon Valley. WUE programs reduce freshwater effluent discharge into the sensitive salt marsh habitat of the Bay, helping to protect habitat and the county's economy.

Central Valley Project Improvement Act

The 1992 Central Valley Project Improvement Act (CVPIA) mandated reforms in the operation and management of the federal and state Central Valley Project, which supplies Sacramento River basin water to the San Francisco Bay area. The CVPIA established incentives for contractors to renew their water service contracts, and the District signed a binding agreement in 1997 to negotiate these renewals. Delivery of water under the Mercy Springs Joint Assignment Agreement, executed on May 19, 1999, became contingent on the requirement that the District Board prepare a CVPIA Water Conservation Plan that meets U.S. Bureau of Reclamation criteria. The Mobile Lab Program was specifically designed to comply with the CVPIA.



District Partnerships

Conserving water is a community-wide effort, and it will take the cooperation of many agencies and organizations to meet future water supply goals. The District maintains cost-sharing agreements with many area cities and utilities to provide conservation programs for residential and commercial water customers. In addition, water retailers and the District have a cooperative partnership that helps retailers fulfill the Best Management Practices of the 1991 MOU. To conserve water and meet future demand for recycled water, the District actively pursues partnerships with area cities and wastewater treatment facilities to expand the county's recycled water systems. Besides these entities, some of the most vital District partnerships are with the residential, commercial and agricultural customers who conserve by updating water use devices and implementing water efficient practices.

The Water-Wise House Call Program is just one of many conservation efforts which the District cost-shares with local cities and utilities.

The District also relies on grants from state and federal agencies to help fund program expansion and vital research. The WUE unit received three grants last year totaling $566,000 to fund conservation and recycling research. In addition, the District was awarded two regionally shared grants totaling $2,232,956 for residential and business water conservation programs.

The District collaborates with universities and state agencies to provide large landscape managers and agricultural water users with professional workshops that help them increase irrigation efficiency. These partnerships also support the California Irrigation Management Information System, which provides growers with climatic data to make efficient irrigation scheduling decisions. The District also provides staff support for its Water Retailer's Recycling Subcommittee, Agricultural Water Advisory Committee, and Landscape Advisory Committee. In addition, WUE staff members participate in statewide conservation and recycling organizations.

District Cost-shared Programs: FY 2001-2002

City of San Jose
Water-Wise House Calls

Residential and Commercial Clothes Washer Rebate

Residential and Commercial ULFT Replacement

Water Efficient Technologies

City of Santa Clara
Commercial Clothes Washer Rebate

City of Sunnyvale
Residential and Commercial ULFT Replacement

City of Palo Alto
Commercial Clothes Washer Rebate

Pacific Gas and Electric
Commercial Clothes Washer Rebate ■

Planning Ahead:
Studies and Research

The District is continually conducting research, on its own and in collaboration with other agencies, to increase water savings and cost-effectiveness in its water conservation programs. At the same time, the District's recycling research is exploring new uses for recycled water, while helping ensure that groundwater and the environment are protected. Data from the studies and research listed below will be vital in creating an effective, long-range water management strategy for Santa Clara County.

In FY 2002, aerial flyovers were completed for a District mapping project that currently is the largest of its kind. The multi-spectral images will allow the District to determine optimum water budgets for sites around the county.

Studies and Research: Water Conservation

The District is continually striving to gain reliable information on how and why conservation programs work most efficiently. Ongoing research helps us evaluate the cost-effectiveness of our programs as well as test new programs and water-saving devices as they become available.

How do the attitudes and practices of residential, business, and agricultural customers affect their water use? Which programs and users have the greatest water savings potential? How can we use the latest technology to give customers the water conservation tools they need? These are just a few of the important issues being explored in the following studies.

Landscape and Agricultural Area Measurement and Water Use Budgets Study

Currently, this unprecedented study is the largest mapping project of its kind ever to be conducted. In FY 2002, the District began conducting aerial flyovers to gather multi-spectral images showing landscape and agricultural areas by parcel for over 900 square miles in Santa Clara County. The images will be used to identify areas of turfgrass, trees, landscaping, water features, bare ground and hardscape for each parcel so that optimum water budgets can be determined for sites around the county.

Concurrently, the District is developing web-based software that will allow county water users to receive a site-specific water budget on-line by entering their site location, meter readings, and other data. This countywide budget database will allow on-line users to compare their actual water usage with recommended amounts for their specific area.

To provide even greater benefits from the study, the District recently decided to expand the project by creating a statewide, web-based resource. The District, in partnership with Cal-Poly's Irrigation Training and Research Center, will develop software to include water budgeting and scheduling throughout the state. On-line users will be given a schedule—the optimum days and minutes of watering time per week—for their specific landscape, as well as irrigation guidelines and other vital information. The project is scheduled for completion by June 2003.

On-site residential surveys are part of the District's comprehensive Water Use Efficiency Baseline Study which will provide the data needed for effective long-term water conservation planning.

Water Use Efficiency Baseline Study

This comprehensive survey will provide the specific data needed to write the Water Use Efficiency Master Plan and streamline the District's WUE programs for effective long-term water conservation. The study consists of phone surveys to assess conservation attitudes throughout the county, and on-site surveys to catalogue the type and prevalence of water-using hardware in the residential sector.

At the end of FY 2002, the District began conducting the first half of the project—the residential surveys—which are targeted for completion in August 2003. Funding is currently being pursued to begin the remainder of the surveys in FY 2003. Ultimately, the study will establish a baseline from which future water savings can be measured.

Mobile Home Submeter Pilot Program Study

Over the last three years, the District has equipped five large mobile home parks with submeters, replacing one-meter systems in which residents in the same complex split water costs evenly, with submeters at each unit, making individual residents responsible for the water they use. In FY 2003, the District will perform a cost-benefit analysis to determine if individual billing reduces water use.

The District is conducting two pilot programs to see if the installation of submeters like this one reduce water usage.

Dedicated Landscape Meter Program

Last fiscal year the District began collecting data for its Dedicated Landscape Meter Program. In FY 2001, the District provided submeters to three large landscape property owners—two homeowners associations and a commercial business park—which allowed them to monitor water used in the site's irrigation systems. The District is currently analyzing the submeter data for water savings, and to determine whether the program merits expansion.

Two studies conducted last year ruled out conservation devices that were not cost-effective or user-friendly. Testing devices thoroughly before distribution ensures that conservation dollars are used as efficiently as possible:

Water supply is a critical issue in Santa Clara County. Ongoing research is designed to increase the water savings and cost-effectiveness of District programs.

Hot Water Recirculation Pump Study

This District study, completed last year, evaluated a device which is installed under the sink to provide instant hot water at the push of a button. Volunteers in Santa Clara County agreed to have the devices installed under their bathroom or kitchen sinks, after which the District measured the resulting water savings. Results showed that although people were pleased with their systems, the water savings was statistically insignificant—one reason may be that people were not using them as often as previously reported. As a result, the District will not be developing a new program around this device.

Four-Liter Ultra-Low-Flush Toilet Study

The District was one of several agencies around the state which participated in this study to evaluate the effectiveness of a new toilet fixture. The new toilet uses about one gallon of water per flush as compared to present ULFTs which use approximately 1.6 gallons per flush. Eight residential and business users in Santa Clara County volunteered to have the toilets installed and were later surveyed to determine effectiveness; a total of 24 toilets were installed statewide. The results of the study were mixed, with approximately half the users reporting performance problems. Although the technology is on the right track, additional work and evaluations will be needed before the District develops a program utilizing the four-liter toilet.

Dual-flush Toilet Study

The District is considering a possible future pilot program to evaluate a dual-flush toilet which is already being used in Australia, New Zealand, and other areas with serious water shortages. The dual-flush toilet allows users to choose either a partial, .8-gallon flush or a full 1.6 gallon flush, depending on need.

"The groundwater basins are aggressively protected from contamination and the threat of contamination."
—Santa Clara Valley Water District Board Ends Policy E-2.1.5.

Studies and Research: Water Recycling

District governance policies call for the expansion of water recycling in Santa Clara County, while at the same time ensuring that groundwater basins are protected from threat of contamination.

To fulfill these goals, the District is working to identify new markets and uses for recycled water, while also conducting research to evaluate the effects that existing and planned recycled water projects may have on groundwater

quality. While recycled water is currently used for large landscape irrigation, agriculture, and some industrial processes, it may also have environmental uses for recharging streams, reservoirs and wetlands. Expanding recycled water applications will require increased monitoring of soil and groundwater quality parameters, as well as advanced levels of wastewater treatment depending on where and how recycled water is used.

The District's water quality studies will identify potential impacts to human health and the environment. Research will also investigate potential treatment methods to expand water recycling options and protect groundwater. Current research studies are described below.

The District's Advanced Water Treatment Study is exploring the feasibility of expanding recycled water use in agriculture, industry, landscaping, and environmental enhancement.

Advanced Water Treatment Study

The District is halfway through a two-year feasibility study that will identify markets for recycled water in industry, agriculture, large landscaping and environmental enhancement, including wetlands development and aquatic habitat maintenance. Recycled water from area wastewater treatments plants is being sampled and analyzed for a wide range of constituents to assess its applicability to various markets. The study will examine the different uses of recycled water and identify feasible water quality standards that protect the county's groundwater and environmental resources.

Targeted for completion in March 2003, the study will identify pilot programs to test various markets, and will be a vital tool in developing the District's countywide master plan for recycled water. The study is being conducted with participation from stakeholders such as environmental groups, water retailers and local agencies, as well as representatives from homeowner associations and the business and agricultural community. (Timeline: September 2001 to March 2003.)

Characterization of Salinity Contributions in Sewer Collection and Reclaimed Water Systems

The District is participating in this nationwide study which will determine the different amounts of salt contributed to reclaimed water systems by different sectors, specifically residential users, restaurants, and industrial/commercial operations. The District is funding this cooperative study along with participating agencies nationwide. (Timeline: May 2002 to March 2004.)

Water Softener Replacement Pilot Program Study

This study is assessing the types of outreach programs and incentive offers required to convince customers to use more efficient water softening technology, thereby reducing harmful salt concentrations in wastewater. (Approximate timeline: July 2002 to August 2003.)

Evaluation of Geochemical Reactions Between Recycled Water and Soil Minerals

This study is evaluating the effect of recycled water on soils in Santa Clara County, including its impact on soil permeability and erosion. (Approximate timeline: July 2002 to August 2003.)

As steward of Santa Clara County's streams, creeks, and underground aquifers, the District continually monitors groundwater quality.

Groundwater Monitoring

The District continually monitors groundwater quality and is expanding its monitoring network to target areas where recycled water is used for irrigation. The monitoring data will be used to detect and correct potential problems early on, before they have a chance to develop. (Timeline: ongoing.)

Movement and Characteristics of Chemicals

The District is conducting research studies, including a collaborative study with a number of other water agencies, to investigate the movement and characteristics of chemicals in recycled water used for irrigation. (Approximate timeline: August 2002 to September 2004.)

Streamflow Augmentation Study

This study will investigate the potential for using recycled water to augment and enhance streamflow in the county. (Approximate timeline: August 2002 to September 2004.)

Evaluation of Potential Impacts from Salt Loading on Groundwater Quality

A comprehensive salt balance shall be performed to evaluate the relative impact of salt contribution from expanded recycled water use. (Approximate timeline: April 2003 to October 2004.)

Santa Clara Valley Water District offices.

Conclusion

Over the past 50 years, Santa Clara County has undergone a transformation from a picturesque agricultural valley into a thriving, high technology business capital based on the computer chip. As the county has transformed, so has the Santa Clara Valley Water District, expanding and altering goals to meet the needs and wishes of its growing population.

Water supply affects every individual and business in our region— our quality of life and economic health depend upon it. The District is dedicated to ensuring a safe and reliable water supply through careful planning and ongoing partnerships that allow local agencies, stakeholders and water customers to work together for the good of all. The Water Use Efficiency unit will continue to promote conservation and water recycling to help us meet this fundamental goal in the most efficient and cost-effective manner possible, now and into the future.